REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHD-23-07

Integrating Visual Performance Measurements in an Augmented/Virtual Reality (AR/VR) Environment

PROJECT DESCRIPTION: There were a record number, 9,723 reports, over one per hour in the US, of laser strikes on aircraft reported to the FAA in 2022. Transient impairment of vision has been reported. Virtual reality is becoming a highly advanced technology that offers incredible immersive capabilities. Flight simulation in augmented/virtual reality (AR/VR) can be used to simulate the visual effects of laser strikes on aircraft. The objectives of this project are to develop a visual performance measurement tool set ranging from tests of basic visual function to performance on complex, visually mediated tasks within an AR/VR space. The tool set will be utilized in an AR/VR flight simulator to measure visual performance in high stress scenarios. Candidates with demonstrated laboratory experience in vision science and augmented/virtual reality simulators are desired. Selected applicants will have the opportunity to collaborate with USAF staff, collaborating university faculty, and contract support staff to develop models and conduct experiments to validate models.

ACADEMIC LEVEL: Master's, PhD

DISCIPLINE NEEDED:

- Neuroscience
- Vision Science
- Computer Science
- AR/VR Gaming

RESEARCH LOCATION: JBSA-Fort Sam Houston, San Antonio, Texas

RESEARCH MENTOR: Julie A. Lovell, PhD
Vision Science, The University of the Incarnate Word, 2021

Dr. Lovell is a research psychologist with the Bioeffects Division of the Airman Systems Directorate in AFRL. Her research interest is in the effects of lasers and other light sources on the human visual system. *Photo courtesy of the U.S. Air Force Research Laboratory.*